

**REMARKS****I. PRELIMINARY REMARKS**

Claims 1, 13, 22, 24 and 33 have been amended.<sup>1</sup> No claims have been added or canceled. Claims 1-38 remain in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

Applicant wishes to thank the Examiner for the courtesy of a telephonic interview conducted with the undersigned representative on November 3, 2005. The claims considered and the arguments presented during the interview are discussed below. During the interview, the Examiner indicated that the actual patentability determination would be made after the present amendment was filed.

**II. BRIEF DESCRIPTION OF AN EXEMPLARY EMBODIMENT**

The present inventions, as defined by claims, are directed generally to antennas that may be used in, for example, implantable medical devices. As illustrated for example in Figure 1, a spinal cord stimulator housing in accordance with one embodiment of a present invention includes a metal portion 20 and a dielectric portion 30. A folded antenna 60 is located within the dielectric portion 30. The antenna 60, which includes a free end 65 and a connection end 75, is connected to a receiver circuit. The receiver circuit has a ground reference that may be connected to the housing metal portion 20. Turning to Figure 5, there is at least one fold between the antenna 60 free end 65 and connection end 75. [See also, for example, paragraph 0042.]

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<sup>1</sup> Applicant notes for the record that the amendments to claims 1 and 13 are for clarification purposes and do not limit the scope of claims 1 and 13, and that claim 24 has simply been rewritten in independent form.

### III. PRIOR ART REJECTIONS

#### A. The Rejections

Claims 1-3, 5, 13-15, 22, 25-28 and 32-38 have been rejected under 35 U.S.C. § 102 as being anticipated by the U.S. Patent No. 6,240,317 to Villaseca ("the Villaseca patent"). Claims 4, 6-12, 16-21, 23 and 24 have been rejected under 35 U.S.C. § 103 as being unpatentable over the Villaseca patent. Claim 29 has been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Villaseca patent and U.S. Patent No. 6,456,256 to Amundson ("the Amundson patent"). The rejections under 35 U.S.C. §§ 102 and 103 are respectfully traversed with respect to the claims as amended above. Reconsideration thereof is respectfully requested.

#### B. Discussion Concerning Claims 1-21, 30 and 31

Independent claims 1 and 13 are directed to respective combinations of elements including, *inter alia*, "an internal transmitter/receiver circuit having a **ground reference located within the metal housing portion that is connected to the metal housing portion** such that the metal housing portion acts as a ground plane" and an antenna with a "connection end [that] is connected to the internal transmitter/receiver circuit." The respective combinations defined by claims 2-12 and 30 include, *inter alia*, the elements recited in claim 1, and the respective combinations defined by claims 14-21 and 31 include, *inter alia*, the elements recited in claim 13.

The Villaseca patent, which discloses a number of implantable medical devices, fails to teach or suggest the claimed combinations. For example, the device illustrated in Figure 7 includes an enclosure 122 and an antenna with a central conductor 134 that coupled to a feedthrough 126, which is in turn coupled to the transceiver within the enclosure. The antenna, a portion of which is covered by a braided shield 124 that is electrically coupled to the enclosure 122, is molded into a plastic connector block 138. Even assuming for the sake of argument that the enclosure 122 corresponds to the

claimed “metal housing portion,” and as discussed during the interview, there is nothing in the Villaseca patent which suggests that there is a ground reference within the enclosure 122 that is connected to the enclosure 122.

As the Villaseca patent fails to teach or suggest each and every element in the respective combinations recited in independent claims 1 and 13, applicant respectfully submits that the rejection of claims 1-3, 5 and 13-15 under 35 U.S.C. § 102 should be withdrawn.

Turning to claims 4, 6-12 and 16-21, applicant respectfully submits that there is nothing in the Villaseca patent that would have rendered the respective combinations defined by independent claims 1 and 13 obvious, that claims 4, 6-12 and 16-21 are patentable for at least the same reasons as claims 1 and 13, and that the rejection of claims 4, 6-12 and 16-21 under 35 U.S.C. § 103 should also be withdrawn.

### C. Discussion Concerning Claims 22, 23, 25-29 and 32

Independent claim 22 is directed to a combination of elements comprising “a housing,” “a transmitter/receiver circuit” and “an elongate monopole RF antenna, with a connection end, a free end and **at least one fold between the connection end and the free end**, operably connected to the transmitter/receiver circuit and positioned entirely within the dielectric portion internal volume such that **the free end is closer to the connection end than the at least one fold**.<sup>2</sup> The respective combinations defined by claims 23, 23 , 25-29 and 32 include, *inter alia*, the elements recited in claim 22.

Applicant respectfully submits that the cited references fail to teach or suggest the claimed combinations. For example, even assuming for the sake of argument that the antenna illustrated in Figure 7 of the Villaseca patent has at least one fold, the free end of the antenna is not closer to the connection end than the at least one fold, as

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<sup>2</sup> As discussed during the interview, one example of such a folded antenna is represented by reference character 60 in Figure 1. [Note free end 65 and connection end 75.]

called for in independent claim 22. Instead, as discussed during the interview, it is the Villaseca fold that is closer to the connection end.

As the Villaseca patent fails to teach or suggest each and every element of the combination recited in independent claim 22, applicant respectfully submits that the rejection of claims 22, 25-28 and 32 under 35 U.S.C. § 102 should be withdrawn.

Turning to claim 23, applicant respectfully submits that there is nothing in the Villaseca patent that would have rendered independent claim 22 obvious, that claim 23 is patentable for at least the same reasons as claim 22, and that the rejection of claim 23 under 35 U.S.C. § 103 should also be withdrawn.

Finally, with respect to claim 29, applicant respectfully submits that there is nothing in the Amundson patent that would have remedied the above-identified deficiencies in the Villaseca patent with respect to independent claim 22. As such, claim 29 is patentable for at least the same reasons as independent claim 22 and the rejection of claim 29 under 35 U.S.C. § 103 should also be withdrawn.

#### D. Discussion Concerning Claim 24

Independent claim 24 is directed to a combination of elements comprising “a housing having a dielectric portion, defining an internal volume and including a curved region, and a metal portion” and “an elongate monopole RF antenna, with at least one fold and *first and second arcuate portions that extend along the curved region in first and second planes that are substantially parallel to one another.*” As noted in the specification at, for example, paragraph 0041, such an antenna configuration maximizes antenna length and also maximizes the separation between the antenna and the metal portion of the housing. The antenna illustrated in Figure 7 of the Villaseca patent clearly does not have the claimed shape, and nothing in the Villaseca patent would have suggested modifications to the antenna that would have resulted in the claimed shape. The rejection of claim 24 under 35 U.S.C. § 103 should, therefore, be withdrawn.

### E. Discussion Concerning Claims 33-38

Independent claim 33 is directed to a combination of elements comprising "a housing," "a transmitter/receiver circuit," "a tissue stimulation circuit" and "an elongate antenna with at least one folded portion operably connected to the transmitter/receiver circuit and positioned within the dielectric portion **such that transmissions from the at least one folded portion are receivable outside the dielectric portion.**" The respective combinations defined by claims 34-38 include, *inter alia*, the elements recited in claim 33.

Applicant respectfully submits that the Villaseca patent fails to teach or suggest the claimed combinations. For example, even assuming for the sake of argument that the bent portion of the antenna illustrated in Figure 7 of the Villaseca patent corresponds to the "at least one folded portion" and that the Villaseca connector block 138 corresponds to the "dielectric portion," transmissions from the Villaseca bent portion are not receivable outside the connector block, as called for in independent claim 33. As discussed during the interview, the bent portion of the Villaseca antenna is covered by a braided **shield** 124.

As the Villaseca patent fails to teach or suggest each and every element of the combination recited in independent claim 33, applicant respectfully submits that the rejection of claims 33-38 under 35 U.S.C. § 102 should be withdrawn.

### IV. CLOSING REMARKS

In view of the foregoing, it is respectfully submitted that the claims in the application are in condition for allowance. Reexamination and reconsideration of the application, as amended, are respectfully requested. Allowance of the claims at an early date is courteously solicited.

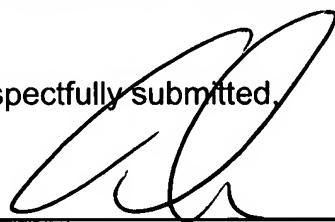
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is respectfully requested to call applicant's undersigned

representative at (310) 563-1458 to discuss the steps necessary for placing the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-0638. Should such fees be associated with an extension of time, applicant respectfully requests that this paper be considered a petition therefor.

11/4/05  
Date

Respectfully submitted,

  
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